(c) Remarks

The claims are 1-22, of which claims 1 and 12 are in independent form. Claims 1 and 12 have been amended to define more clearly what is regarded as the invention. Support for these amendments is located throughout the specification, particularly at page 41, line 4 - page 42, line 13. Claims 6, 9 and 13-22 were amended to resolve informalities unrelated to patentability. Accordingly, no new matter has been added. Favorable reconsideration is expressly requested.

Claims 1-22 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over the combination of Japanese Patent Appln. No. JP 11-109770 (*Hiroko et al.*) with U.S. Patent No. 6,806,009 (*Tanaka et al.*), as outlined at pages 2 and 3 of the Office Action. Applicant respectfully traverses the reasons for this rejection.

Prior to addressing the grounds of rejection, Applicant wishes to briefly review certain key features and advantages of the present invention. Initially, the MPEP indicates, at § 2144.05(II)(A), that patentability may lie where a range is critical for a particular result. Also, "[e]vidence of unobvious or unexpected advantageous properties, such as superiority in a property the claimed compound shares with the prior art, can rebut *prima facie* obviousness." MPEP § 716.02(a)(II) at 700–268 (8th Ed., Rev. 3, August 2005).

Applicant notes that an important feature of the present invention is the requirement that the elastic layer satisfy the relationship that the hardness/density ratio ≥ 65, as recited in claim 1. As explained at specification page 7, an object of the present invention is to reduce the amount of seepage of the ingredients present in the elastic layer. To obviate the uneven electrical resistance distribution along the elastic layer common to

electron conductive rollers, the present invention, instead, uses ion conductive rollers. Yet such rollers frequently encounter the separate problem of photosensitive drum contamination due to seepage of constituents. That is, addition of ion conductive substances causes the leakage of ingredients making up the elastic layer, thereby affecting the conditions under which moving objects, such as rollers, are charged and inevitably reducing toner image quality. *See generally* specification, page 6, lines 5-25.

Without wishing to be bound by theory, Applicant believes there to be a direct correlation between the amount of contamination that occurs from leakage of constituents and the hardness/density ratio of the elastic layer. Particularly, as outlined in Figure 6, the value "65" represents the threshold hardness/density ratio for effective reduction in seepage. At this value, a higher degree of cross-linking activity occurs, thus maintaining the integrity of the roller by trapping the constituents therein and ultimately contributing to better image quality. More precisely, at a larger hardness/specific gravity ratio value, the cross-linking density is able to improve containment within the roller of the ingredients prone to leakage. *See* specification, page 33, lines 12-26.

Hiroko discloses a transfer roller and image forming device directed to preventing leakage of components. To accomplish this objective, *Hiroko* teaches, in part, exposing the peripheral surface of the imprint roller to ultraviolet rays for the purpose of hardening this periphery into a barrier layer. *See*, e.g., paragraphs [0016], [0018] and [0034] of the enclosed English language translation of *Hiroko* (hereafter "Translation"). However, exposing the periphery to ultraviolet rays also causes a reduction in the coefficient of friction, thereby slowing the speed at which the imprint roller conveys the transfer medium. In addition, when the UV-hardened periphery is worn off during use,

exposure of the untreated layer allows the seepage of ingredients comprising the elastic layer. *See* specification, page 30, line 21 - page 31, line 8.

In contrast, the periphery of the roller in Applicant's invention is not treated with ultraviolet rays. Instead, the entire elastic layer is hardened throughout, by enhancing cross-linking density or the like, so as to eliminate the need for a barrier layer, thereby ensuring that the prevention of seepage is not limited to merely the periphery. This is advantageous in that no reduction occurs in the friction coefficient and, hence, the high speed at which the roller conveys the transfer medium is maintained. *See* specification, page 31, lines 15-21. An illustration of these results appears in Table 3 and is explained at pages 35-37. Accordingly, the present invention provides better leakage control without any reduction of the coefficient of friction.

Moreover, as conceded by the Examiner at page 2 of the Office Action, *Hiroko* does not disclose

> the elastic layer having an ion electroconductivity and having a hardness of not less than 20 and not more than 50, wherein the hardness and a density of the elastic layer satisfy (hardness/density) ≥ 65 . . ..

In addition to the above, however, Applicant notes that, as illustrated in the Examples of *Hiroko*, the composition of the elastic layer is solid rubber, with an Asker-C hardness of 40-80 degrees, preferably 50-70 degrees. *See,* e.g., paragraphs [0043] and [0061].

On the other hand, because the elastic layer in some embodiments of the present invention is formed from a particular foam composition, the leakage of the ingredients is further stemmed. Applicant has discovered that the eventual decomposition of certain foaming agents comprising the elastic layer to be one source of this current

problem. Use of small amounts of certain highly efficient foaming agents, such as azodicarbonamide, affords markedly less contamination upon their decomposition. *See* specification, page 41, line 4 - page 42, line 8 and Table 5. In any event, *Hiroko* does not teach an elastic layer comprising a foam, as recited in claim 1.

Tanaka fails to remedy the deficiencies of *Hiroko*. Specifically, the Office Action indicates at page 2 that "Tanaka et al teach . . . wherein the hardness and a density of the elastic layer satisfy (hardness/density) ≥ 65". Applicant respectfully disagrees, and submits that *Tanaka* is, in fact, silent as to any hardness/density ratio value. At Column 42, lines 39-61, the reference discusses merely the level of hardness as measured on the Asker scale, explaining that the elastic layer must be neither too hard nor too soft. Yet, importantly, the reference does not mention the problem of contamination due to seepage of the elastic layer ingredients. In this way, Applicant believes it clear that *Tanaka* fails to recognize the unexpected correlation between the hardness/specific gravity ratio value and the reductions in levels of contaminants seeping from a roller, thus imparting superior results in the present invention. "To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." MPEP § 2143.03 at 2100–139 (citing *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)) (emphasis added). Accordingly, because *Tanaka* is altogether silent as to any hardness/density value generally, it cannot teach, or even suggest, the specifically-claimed (critical) solution of a ≥ 65 value for overcoming this problem in the art. Accordingly, claim 1 is believed patentable over the combination of *Hiroko* with *Tanaka*.

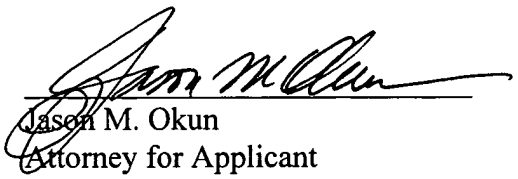
Based on all of the foregoing, Applicant respectfully submits that claim 1 is patentably distinct from the cited references, and kindly requests withdrawal of the

rejection under 35 U.S.C. § 103(a). Independent claim 12, directed to a roller, recites the same features as discussed above, and is therefore likewise believed patentable by virtue of at least the same reasons.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual consideration or reconsideration, as the case may be, of the patentability of each on its own merits is respectfully requested.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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